Section IV: Insurance for Mental Health Care

Chapter 13

Prevalence of, and Payments for, Mental Health and Substance Abuse Disorders in Public and Private Sector Health Plans

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Introduction

Few estimates have been made of the number of Americans who suffer from mental or substance use (MH/SA) disorders and the utilization and costs associated with treating these conditions for both public and private payers. Previous studies focused on costs of M/SU services in the private sector (Garnick, et al., 1996; Goldman, et al., 1998) or particular public programs (Callahan, et al., 1995; Cano, et al., 1997). Moreover, prior studies rarely provided separate estimates for mental health disorders and substance abuse disorders for the same payer. Because the structure of the health care system has changed significantly during the past decade, a comprehensive study of MH/SA utilization across public and private sectors and over time is needed to provide a framework from which the effects of these changes can be assessed.

Larson and colleagues (1998) reported the first comprehensive assessment of the prevalence of MH/SA conditions among select populations. Included were estimates and the corresponding total of the diagnosed annual prevalence of MH/SA conditions and MH/SA-related utilization and payments using Medicaid data from three States—Michigan, New Jersey, and Washington—in 1993, and Medicare and private sector health plan data from 1994. The primary purpose of this chapter is to update these

findings. We present utilization and payments for MH/SA claimants in the public and private sectors and for claimants from several comparison samples, including those with asthma and diabetes. For consistency, all estimates are constructed using a common algorithm regardless of the data source. Finally, brief summaries of three detailed studies that address specific issues related to the MH/SA populations are presented.

Utilization and Payments for MH/SA Services

Data

Data in this chapter come from three sources: Medicare, Medicaid, and private sector health plans. Both the Medicare and Medicaid data were acquired from the Centers for Medicare and Medicaid Services (CMS). The Medicare files consist of the 1995 5% Sample Beneficiary Standard Analytic Files (SAF) and the 5% Enrollment Database (EDB). The five percent files include all fee-for-service claims for a five percent random sample of Medicare beneficiaries not enrolled in Medicare health maintenance organizations (HMOs). These files include claims for inpatient, outpatient, and other covered services as well as for eligibility and demographic data on individual Medicare beneficiaries. The Medicare estimates can be generalized to the U.S. elderly population not enrolled in Medicare HMOs and those with select disabilities (i.e., those eligible for Supplemental Security Disability Insurance [SSDI]).

Medicaid data are from the State Medicaid Research Files (SMRF), which have similar file layouts and compatible database development. SMRF data include paid claims for all Medicaid-covered services for individuals enrolled in the traditional fee-for-service Medicaid program and eligibility and demographic information for all recipients, including those enrolled in Medicaid HMOs. We use SMRF data for Michigan, New Jersey, and Washington for 1994 and Pennsylvania for 1995. The Medicaid estimates are derived from fee-for-service Medicaid claims within these States and may not generalize to those in Medicaid HMOs or to other States.

Private insurance data are from MarketScan®, a database of claims, benefit design, and person-level enrollment information. The MEDSTAT Group creates and maintains this large private sector database from claims files submitted from private employers, insurance companies, and managed care vendors. This study focuses on those employers for whom both enrollment data and benefit design information were available for 1995. Because the private sector database includes individuals from a nonrandom sample of plans, these results do not necessarily generalize to a larger universe of private sector health plans. However, unlike the available Medicare and Medicaid databases, the private sector database includes utilization data for individuals enrolled in managed care, allowing for analyses that are not possible with the public sector databases.

Analysis Samples

We define MH/SA claimants as those with at least one *primary* diagnosis indicative of an MH/SA disorder, at least one procedure indicative of an MH/SA disorder regardless of the diagnosis, or at least one claim from an MH/SA specialty provider regardless of the diagnosis or procedure. All claims for these individuals are included in the analysis. Each claim (and corresponding payment) is classified as either MH/SA or non-MH/SA on the basis of the primary diagnosis on the claim. On the basis of these claims, we calculate a series of statistics related to MH/SA and non-MH/SA utilization and payments. Finally, we contrast payments for MH/SA claimants with payments for three comparison samples. These samples are a random sample of claimants with no evidence of an MH/SA condition, a sample of claimants with diabetes, and a sample of claimants with asthma. Details on the construction of the MH/SA sample and the comparison samples are provided in Larson and colleagues (1998) and the appendix.

Although the method for identifying MH/SA claimants was uniform across all data sources, differences exist that affect both utilization and payments. For example, there are major differences in population characteristics across programs: Medicare data are representative of the elderly and those with certain disabilities. Medicaid data are limited to low-income and medically needy individuals, and the characteristics of these individuals and their coverage options vary considerably from State to State. Private sector data include only those with employer-based coverage and their families. In addition, differences in copayments, coinsurance, deductibles, and the scope of health care benefits influence the type of health care claims observed in each data source. All these factors must be consid-

ered when comparing rates of utilization and payments across programs.

Results

Table 1 provides an overview of the observed prevalence of MH/SA claimants in each of the populations studied. Michigan's fee-for-service Medicaid program has the highest documented rates of MH/SA claimants, with 18.6 percent of total claimants (15.9 percent of enrollees) having evidence of at least one MH/SA claim during the year. The diagnosed prevalence of MH/SA conditions is only slightly lower in Pennsylvania (17.9 percent of total claimants; 14.9 percent of enrollees) and Washington (16.2 percent of total claimants; 12.6 percent of enrollees), followed closely by New Jersey's Medicaid program (12.2 percent of claimants; 10.1 percent of enrollees) and Medicare (11.2 percent of claimants; 9.6 percent of enrollees). The private sector has the lowest documented diagnosed prevalence of MH/SA conditions at 10.6 percent of claimants and 7.0 percent of enrollees. The vast majority of MH/SA claimants are diagnosed with only mental health conditions. As shown in table 1, private sector enrollees were less likely than public sector enrollees to have a claim.

Diagnosed Mental Health Prevalence

Table 2 presents the percentage of MH/SA claimants, total claimants, and total enrollees with at least one primary diagnosis during the year associated with a specific mental health condition. The highest percentage of enrollees with at least one mental health condition occurs in Medicaid, where between 8 percent and 13 percent of enrollees have a diagnosed mental health condition at some point during the year. The private sector has the lowest percentage at 6.5 percent of enrollees. As discussed in Larson and colleagues (1998), the lower rates of mental health conditions for private sector enrollees may result from barriers such as a lack of coverage for mental health services or higher copayments for mental health care.

The rates for private sector enrollees would likely be lower than for public sector enrollees even without these barriers because many individuals in the public programs are eligible either directly or indirectly because of their mental illness. For example, individuals with schizophrenia are eligible for Medicare through SSDI. Because those with schizophrenia are often unable to work, they typically qualify for Medicaid as well. Therefore, it is not surprising that although nearly 12 percent of Medicare MH/SA claimants and between 10 and 17 percent of Medicaid MH/SA claimants had at least one claim with schizophrenia as a primary diagnosis, only 1.5 percent of private sector MH/SA claimants had this diagnosis.

In contrast to schizophrenia, major depression, stress and adjustment disorders, and other mood disorders (including anxiety disorders) are more prevalent among the private sector MH/SA population than among the Medicaid or Medicare MH/SA population. Among the remaining mental health conditions, there is considerable variation across programs. For example, childhood disorders were diagnosed in just over 27 percent of the MH/SA population in Michigan, between 10 and 19 percent of the MH/SA population in the other States and the private sector, and approximately one percent of MH/SA population on Medicare. Some of this difference is likely a result of differences in the age distribution of claimants, especially in regard to Medicare. Diagnoses that fall into the catchall category of "other mood disorders (including anxiety disorders)" represent the most common mental health diagnoses. More than 40 percent of private sector MH/SA claimants, 35 percent of Medicare MH/SA claimants, and between 16 and 29 percent of each State's Medicaid MH/SA claimants have a diagnosis included in this category.

Diagnosed Substance Abuse Prevalence

Table 3 presents statistics similar to those in Table 2 but for claimants with select substance abuse disorders. Substance abuse disorders were more frequent in the Medicaid program than in Medicare or the private sector. The most common cause was either alcohol or drug dependence and nondependent abuse disorders. Alcohol dependence/nondependent abuse accounted for between 3.5 percent (Medicare) and 8.7 percent (Washington Medicaid) of MH/SA claimants, and drug dependence/nondependent abuse accounted for between 1.8 percent (Medicare) and 13.4 percent (New Jersey Medicaid) of MH/SA claimants. Only in New Jersey was drug dependence/nondependent abuse more common than alcohol dependence/nondependent abuse. Dual diagnoses (i.e., diagnoses of both mental health and substance abuse disorders) accounted for between 3.0 percent (private sector)

Table 1. Frequency of MH/SA claimants

Type of Claimant	Private Sector 1995	Medicaid				Medicare (5% Sample) 1995
		MI 1994	NJ 1994	PA 1995	WA 1994	
Total MH/SA Claimants	133,937	173,877	79,997	179,797	56,313	173,528
% of Total claimants	10.6%	18.6%	12.2%	17.9%	16.2%	11.2%
% of Total enrollees	7.0%	15.9%	10.1%	14.9%	12.6%	9.6%
MH Only Claimants	120,270	121,138	57,825	144,062	39,511	147,330
% of MH/SA claimants with only MH claims	89.8%	69.7%	72.3%	80.1%	70.2%	84.9%
SA Only Claimants	7,528	15,564	12,036	13,980	7,262	8,621
% of MH/SA claimants with only SA claims	5.6%	9.0%	15.0%	7.8%	12.9%	5.0%
Dual MH/SA Claimants	4,062	8,490	5,977	11,374	3,810	6,800
% of MH/SA claimants with both MH and SA claims	3.0%	4.9%	7.5%	6.3%	6.8%	3.9%
Total Claimants	1,260,799	936,539	657,082	1,004,698	348,169	1,554,739
% of Total enrollees	66.1%	85.6%	83.2%	83.0%	78.2%	86.1%
Total Enrollees	1,908,316	1,093,760	789,291	1,210,217	445,204	1,805,872

and 7.5 percent (New Jersey Medicaid) of MH/SA claimants.

Utilization and Payments

Table 4 provides information on the annual health services utilization and payments for MH/SA claimants. The private sector payment analysis focuses on MH/SA claimants enrolled in fee-for-service plans because no payments are associated with encounters for those enrolled in managed care. The table gives an idea of the magnitude of payments for MH/SA claimants (for both MH/SA and non-MH/SA services). In a single year, approximately $440 million was spent on the 114,000 MH/SA claimants enrolled in private sector fee-for-service plans. Michigan's and Pennsylvania's Medicaid programs each spent well over $1 billion to treat MH/SA claimants, and Medicare spent nearly $40 billion in total ($2 billion for the 5% Sample) to treat such MH/SA claimants. Washington State had the fewest MH/SA claimants enrolled in its fee-for-service Medicaid program and spent the least ($387 million) treating them.

The private sector fee-for-service plans had the lowest average payment per MH/SA claimant at $3,858. The average payment per MH/SA claimant for the Medicaid programs ranged from $6,877 to $8,737. These numbers are substantially below the $11,475 average payment per MH/SA claimant in the Medicare program. However, these payments include payments for both MH/SA and non-MH/SA services. Focusing specifically on payments for MH/SA services, the percentage dedicated to MH/SA services is greatest in Michigan's Medicaid program at almost 49 percent and lowest in Medicare at almost 18 percent. The low percentage for Medicare claimants is partially explained by the fact that these individuals consume considerably more non-MH/SA services than either Medicaid or private sector claimants. The ordering of payments is consistent with those in the comparison sample: Payments are lowest for those in the private sector health plans and highest for those in Medicare.

Table 4 also compares the payments associated with MH/SA conditions to those associated with dia-

Table 2. Percentage of claimants with select mental health conditions

	Private Sector 1995	**MI 1994**	**NJ 1994**	**PA 1995**	**WA 1994**	**Medicare (5% Sample) 1995**
Any Mental Health Condition						
% of MH/SA claimants	92.8%	74.6%	79.8%	86.5%	76.9%	88.8%
% of Total claimants	9.86%	13.84%	9.71%	15.47%	12.44%	9.91%
% of Total enrollees	6.52%	11.85%	8.08%	12.84%	9.73%	8.53%
Schizophrenia						
% of MH/SA claimants	1.5%	10.9%	16.8%	14.2%	14.4%	11.9%
% of Total claimants	0.16%	2.02%	2.05%	2.54%	2.33%	1.33%
% of Total enrollees	0.11%	1.73%	1.70%	2.11%	1.82%	1.14%
Major Depression						
% of MH/SA claimants	19.6%	8.3%	8.9%	15.2%	13.4%	18.7%
% of Total claimants	2.08%	1.54%	1.08%	2.72%	2.17%	2.09%
% of Total enrollees	1.38%	1.32%	0.90%	2.26%	1.69%	1.80%
Other Affective Psychoses						
% of MH/SA claimants	5.7%	5.0%	5.0%	6.7%	8.7%	6.6%
% of Total claimants	0.61%	0.93%	0.61%	1.20%	1.41%	0.74%
% of Total enrollees	0.40%	0.79%	0.51%	1.00%	1.10%	0.63%
Other Psychoses						
% of MH/SA claimants	2.0%	9.6%	7.3%	9.5%	8.0%	23.8%
% of Total claimants	0.21%	1.78%	0.89%	1.70%	1.29%	2.66%
% of Total enrollees	0.14%	1.53%	0.74%	1.41%	1.01%	2.29%
Stress and Adjustment Disorders						
% of MH/SA claimants	28.2%	12.7%	17.0%	17.6%	13.1%	8.6%
% of Total claimants	3.00%	2.36%	2.07%	3.15%	2.12%	0.96%
% of Total enrollees	1.98%	2.02%	1.72%	2.61%	1.66%	0.83%
Personality Disorders						
% of MH/SA claimants	1.2%	1.8%	2.7%	2.5%	1.8%	1.4%
% of Total claimants	0.13%	0.33%	0.33%	0.45%	0.29%	0.16%
% of Total enrollees	0.08%	0.29%	0.27%	0.37%	0.23%	0.13%
Childhood Disorders						
% of MH/SA claimants	10.9%	27.4%	13.2%	18.6%	10.6%	1.2%
% of Total claimants	1.16%	5.09%	1.61%	3.33%	1.71%	0.13%
% of Total enrollees	0.77%	4.36%	1.34%	2.76%	1.34%	0.12%
Other Mood Disorders (Including Anxiety Disorders)						
% of MH/SA claimants	40.8%	16.6%	29.3%	29.2%	23.6%	35.3%
% of Total claimants	4.33%	3.08%	3.57%	5.23%	3.82%	3.94%
% of Total enrollees	2.86%	2.64%	2.97%	4.34%	2.99%	3.39%
Other Mental Disorders						
% of MH/SA claimants	6.4%	4.7%	6.8%	6.7%	6.6%	11.1%
% of Total claimants	0.68%	0.87%	0.83%	1.20%	1.07%	1.24%
% of Total enrollees	0.45%	0.75%	0.69%	1.00%	0.83%	1.07%

Table 3. Percentage of claimants with select mental health and substance abuse conditions

	Private Sector 1995	**MI 1994**	**NJ 1994**	**PA 1995**	**WA 1994**	**Medicare (5% Sample) 1995**
Dual Diagnoses (Both MH and SA)						
% of MH/SA claimants	3.0%	4.9%	7.5%	6.3%	6.8%	3.9%
% of Total claimants	0.32%	0.91%	0.91%	1.13%	1.09%	0.44%
% of Total enrollees	0.21%	0.78%	0.76%	0.94%’	0.86%	0.38%
Any Substance Abuse Disorder						
% of MH/SA claimants	8.7%	13.8%	22.5%	14.1%	19.7%	8.9%
% of Total claimants	0.92%	2.57%	2.74%	2.52%	3.18%	0.99%
% of Total enrollees	0.61%	2.20%	2.28%	2.09%	2.49%	0.85%
Alcoholic Psychoses						
% of MH/SA claimants	0.2%	0.6%	1.0%	0.9%	1.2%	1.0%
% of Total claimants	0.02%	0.11%	0.12%	0.16%	0.19%	0.11%
% of Total enrollees	0.01%	0.10%	0.10%	0.13%	0.15%	0.10%
Alcohol Dependence/Nondependent Abuse						
% of MH/SA claimants	4.3%	6.0%	7.0%	5.8%	8.7%	3.5%
% of Total claimants	0.46%	1.11%	0.85%	1.04%	1.41%	0.39%
% of Total enrollees	0.30%	0.95%	0.71%	0.86%	1.10%	0.34%
Drug Psychoses and Mood Disorders						
% of MH/SA claimants	0.2%	0.3%	1.5%	1.0%	0.9%	0.9%
% of Total claimants	0.02%	0.06%	0.18%	0.18%	0.15%	0.10%
% of Total enrollees	0.01%	0.05%	0.15%	0.15%	0.11%	0.09%
Drug Dependence/Nondependent Abuse						
% of MH/SA claimants	2.4%	5.5%	13.4%	5.7%	6.6%	1.8%
% of Total claimants	0.25%	1.02%	1.63%	1.02%	1.07%	0.20%
% of Total enrollees	0.17%	0.87%	1.36%	0.85%	0.83%	0.17%
Tobacco Use Disorder						
% of MH/SA claimants	1.2%	0.5%	0.6%	0.8%	0.7%	0.8%
% of Total claimants	0.13%	0.09%	0.07%	0.14%	0.11%	0.09%
% of Total enrollees	0.08%	0.08%	0.06%	0.12%	0.09%	0.08%

Table 4. Annual utilization and payments

Type of Utilization	Private Sector (fee-for-service) 1995	Medicaid				Medicare (5% Sample) 1995
		MI 1994	NJ 1994	PA 1995	WA 1994	
MH/SA claimants	114,132	173,877	79,997	179,797	56,313	173,528
Total payments for MH/SA claimants ($1,000)	$440,339	$1,270,198	$698,910	$1,361,900	$387,273	$1,991,191
Average payment per MH/SA claimant	$3,858	$7,305	$8,737	$7,575	$6,877	$11,475
% Dedicated to MH/SA services	30.7%	48.6%	43.3%	43.8%	36.6%	17.9%
Average payment per non-MH/SA claimant (comparison sample)	$1,853	$2,238	$2,909	$3,564	$3,044	$3,798
Average payment per claimant with diabetes	$5,650	$6,984	$8,907	$9,225	$7,414	$8,977
Average payment per claimant with asthma	$3,478	$4,198	$4,702	$4,955	$5,255	$9,672

betes and asthma. Diabetes and asthma are two costly chronic conditions that affect a significant portion of each plan's enrolled population. Table 4 reveals that the average annual payment per MH/SA claimant is higher than the average annual payment per asthma claimant in all five programs. In two of the five programs (Medicare and Michigan), the average annual payment per MH/SA claimant is also higher than the average annual payment per claimant with diabetes.

Table 5 presents the percentage of MH/SA claimants who also had an MH/SA claim in the previous year. Before making this comparison, we removed claimants whose utilization data were not available in the prior year. They included individuals who were previously uninsured or enrolled in a different health plan and individuals who were enrolled in a managed care plan that did not report utilization. Table 5 shows that a high percentage of the MH/SA claimants had evidence of MH/SA claims in both years. Nearly 54 percent of private sector and nearly 50 percent of Medicare MH/SA claimants had evidence of an MH/SA condition in the prior year. For Medicaid, the percentages of MH/SA claimants with MH/SA claims in the prior year were even higher, ranging from 57 to 67 percent.

The final two rows of table 5 compare average annual payments for MH/SA claimants identified in both years versus "new" MH/SA claimants. With the exception of Medicare, those with a diagnosed MH/SA condition in both years were more expensive to treat than "new" MH/SA claimants. The magnitude of the difference was approximately $900 for private sector MH/SA claimants, whereas the difference ranged from $2,000 to $5,000 for Medicaid claimants. Claimants diagnosed with MH/SA conditions in both years might represent a more serious type of MH/SA claimant and would therefore be more expensive to treat. However, the nearly $4,000 higher average for the "new" Medicare MH/SA claimants is not consistent with this hypothesis.

Intertemporal Comparisons

Table 6 compares the percentage of claimants with an MH/SA disorder, the average payment per MH/SA claimant, and the percentage of payments dedicated to MH/SA services for the current and prior analysis years. With the exception of those in the private sector, the percentage of claimants with an MH/SA condition increased from the prior to the current analysis year. The largest increase (3.3 percent) occurred in Michigan's Medicaid program, and the smallest increase (0.5 percent) occurred in both New Jersey's Medicaid program and the Medicare population. The percentage of claimants in the pri-

Table 5. Frequency of MH/SA claimants by year

Total by Year	Private Sector 1995	Medicaid				Medicare (5% Sample) 1995
		MI 1994	NJ 1994	PA 1995	WA 1994	
Current year MH/SA claimants who are eligible in prior year	34,207	152,997	68,576	154,914	46,637	167,298
% Current year MH/SA claimants with MH/SA claim in prior year	53.5%	59.8%	57.6%	61.7%	66.5%	48.8%
% Current year MH/SA claimants with only non-MH/SA claims in prior year	35.7%	36.5%	36.8%	34.6%	30.1%	47.4%
% Current year MH/SA claimants with no claims in prior year	10.8%	3.7%	5.6%	3.8%	3.5%	3.8%
Average payment per current year MH/SA claimant with no MH/SA claim in prior year	$3,717	$4,578	$6,875	$6,079	$5,778	$13,224
Average payment per current year MH/SA claimant with an MH/SA claim in prior year	$4,612	$9,598	$10,623	$8,801	$7,747	$9,506

Table 6. Intertemporal comparisons

	Private Sector (fee-for-service)		MI		NJ		PA		WA		Medicare (5% Sample)	
	1994	1995	1993	1994	1993	1994	1994	1995	1993	1994	1994	1995
% of claimants with an MH/SA disorder(s)	10.7%	10.6%	15.3%	18.6%	11.7%	12.2%	15.7%	17.9%	13.8%	16.2%	10.7%	11.2%
Avg. payment per MH/SA claimant	n/a	$3,858	$7,818	$7,305	$8,112	$8,737	$6,776	$7,575	$5,783	$6,877	$10,877	$11,475
% Dedicated to MH/SA services	n/a	30.7%	48.8%	48.6%	43.5%	43.3%	46.3%	43.8%	36.7%	36.6%	19.1%	17.9%

vate sector with a diagnosed MH/SA condition decreased by one-tenth of one percentage point from the prior to the current analysis year. With the exception of Michigan's Medicaid program, average payments per MH/SA claimant in the public sector programs also increased between years. The largest increase (nearly $1,100) occurred in Washington, and the smallest increase (just under $600) occurred in Medicare. The average payment per MH/SA claimant in Michigan's Medicaid program decreased by approximately $500. The percentage of payments dedicated to MH/SA services for MH/SA claimants remained relatively constant between years.

Although we used a common algorithm to identify MH/SA claimants and payments across years, several other factors may be responsible for changes in MH/SA prevalence and payments over time. These factors include the transition of individuals into public sector managed care plans, changes in coverage options and reimbursement rates over time, and changes in the demographic makeup of enrolled individuals.

Detailed Analyses

Medicare Payment Implications for Dual Diagnosis Claimants

Background. A number of studies have found that dual diagnosis claimants, those with both mental health and substance abuse diagnoses, have greater utilization and higher treatment costs than those with a single mental health or substance abuse disorder (Bartels et al., 1993; Dickey and Azeni, 1996; Garnick, et al., 1996). This finding should be expected because of the additional costs of treating two MH/SA conditions, as opposed to one. From a payer's perspective, a more relevant issue concerns whether the increase in costs associated with treating the substance abuse condition is less if the individual is also being treated for a mental illness. In other words, does mental health treatment partially offset the costs associated with treating the substance abuse condition?

In our first detailed analysis, we examine three issues related to the cost implications associated with dual diagnoses. First, while controlling for non-MH/SA-related utilization, we examine differences in the cost of substance abuse treatment for Medicare beneficiaries with three specific mental health conditions: schizophrenia, major depression, and other affective psychosis disorders (including manic and bipolar disorders). Second, we test whether general medical (non-MH/SA-related) costs to Medicare for claimants with a substance abuse condition are greater than for those without a substance abuse condition. Third, we test whether the cost implications of substance abuse are even greater for dual diagnosis claimants. By examining each of these issues separately, we derive a more complete picture of the financial implications associated with dual diagnoses.

Methods. We created a database detailing the Medicare claims experience for claimants who had 12 months of fee-for-service eligibility in 1995 and, in the same year, at least one claim with a primary diagnosis for schizophrenia, major depression, other affective psychosis disorders, or substance abuse.[1] A total of 64,792 claimants with these MH/SA conditions were identified. In addition, we included data on a comparison sample of nearly 272,000 claimants who had at least one claim in 1995 not related to substance abuse or any of the three mental health conditions of interest.

To test for payment differences in the treatment of substance abuse for claimants with select mental illnesses, we estimate ordinary least squares (OLS) regression equations with logged Medicare payments as the dependent variable[2] and include mental health, substance abuse, and MH/SA interaction terms as independent variables. On the basis of the coefficients associated with these variables, we compute the incremental cost of substance abuse for claimants with each mental illness and for claimants in the comparison sample while controlling for select patient-level characteristics. These characteristics include demographic characteristics and a set of chronic conditions likely to affect total Medicare payments (Elixhauser, et al., 1998). To test whether non-MH/SA-related payments for claimants with a substance abuse condition are greater than for those without a substance abuse condition, and whether the difference is even greater for dual diagnosis claimants, we rerun the regressions with the natural log of annual non-MH/SA-related payments as the independent variable.

Results. Regression results are presented in table 7. The negative and significant coefficients associated with the interaction terms in Model 1 reveal that a portion of the increase in MH/SA payments associated with a substance abuse condition is offset if the claimant is also being treated for one of the three mental health conditions. The greatest offsets appear for claimants with schizophrenia, where 41 percent of the increase associated with substance abuse is offset,[3] followed by claimants with other affective psychosis claimants (27 percent offset), and claimants with major depression (6 percent offset). To provide an idea of the magnitude of these changes, we used our results to calculate the difference in MH/SA payments between substance abuse claimants and claimants in the comparison sample. Our results suggest offsets totaling $1,991 for claimants with schizophrenia, $1,310 for claimants with other

[1] Using the National Center for Health Statistics' *International Classification of Diseases* (9th Rev.) (ICD-9), *Clinical Modification* (Vol. I.), claims for schizophrenia were identified by ICD-9 code 295 (schizophrenic disorders); claims for major depression were identified by ICD-9 codes 296.2 and 296.3 (depressive psychoses); claims for other affective psychosis disorders were identified by ICD-9 codes 296.0 or 296.1 (manic disorders) and 296.4–296.99 (bipolar and other affective psychoses); and claims for substance abuse disorders were identified by ICD-9 codes 303 (alcohol dependence), 304 (drug dependence), 305.0 (non-dependent alcohol abuse), and 305.2–305.9 (drug abuse).

[2] We estimate the regression using the natural logarithm to adjust for the skewed distribution of payments.

[3] The percentage offset is calculated as the schizophrenia-substance abuse interaction coefficient divided by the substance abuse coefficient, or –0.77/1.88 = –0.409.

Table 7. Regression analysis of medicare payments

Variable	Model 1: Annual MH/SA Payments		Model 2: Annual Non-MH/SA Payments	
	Parameter Estimate	*t*-Statistic	Parameter Estimate	*t*-Statistic
Intercept	5.15	62.15	5.20	98.27
Main Effects				
Major depression	1.53	100.97	0.36	33.29
Schizophrenia	1.79	95.67	–0.20	–14.05
Other affective psychosis disorders	1.38	69.06	0.02	1.24
Substance abuse	1.88	66.45	0.33	14.00
Interactions				
Major depression x substance abuse	–0.12	–2.16	–0.27	–5.39
Schizophrenia x substance abuse	–0.77	–12.07	–0.06	–0.98
Other affective psychosis disorders x substance abuse	–0.51	–6.78	–0.12	–1.81
Demographics				
Age-65	–0.04	–17.10	–0.01	–3.69
(Age-65)	0.00	11.77	0.00	11.23
Male	0.10	7.22	0.03	4.51
Race[a]				
Black	0.07	3.63	–0.12	–12.20
Hispanic	0.07	1.47	0.16	6.18
Other race	0.04	0.94	–0.03	–1.76
Other initial reason for eligibility[b]	0.11	5.14	0.25	26.01
Comorbidities				
Alzheimer's disease	0.71	34.42	0.40	29.44
Anemia	0.19	10.50	0.82	93.70
Asthma	0.11	4.26	0.77	60.08
Cancer	0.07	3.68	1.03	125.02
Cardiovascular disease	0.28	18.55	1.03	172.05
Diabetes	0.01	0.39	0.47	62.91
HIV/AIDS	0.34	4.51	1.06	18.58
Liver disease	0.56	6.75	0.79	14.76
Mental retardation/developmental delays	0.13	3.36	0.22	7.79
Neurological disorders	0.59	29.93	1.01	85.42
Nutritional disorders	0.40	23.24	1.26	138.11
Other MH conditions	1.06	76.59	0.36	37.45
Renal failure	–0.12	–3.20	0.94	50.81
Observations	75,317		323,628	
R-Square	0.31		0.37	

[a] Referent is White.
[b] Referent is aged as initial reason for eligibility.

affective psychosis disorders, and $291 for claimants with major depression.

Consistent with the hypothesis that substance abuse adversely affects an individual's physical health, Model 2 reveals that substance abuse claimants without one of the three primary mental health conditions are associated with 33 percent greater non-MH/SA payments. The presence of schizophrenia or other affective psychosis disorders does not significantly affect this increase. Only in the case of major depression is the increase in non-MH/SA payments associated with substance abuse statistically different than for those without a mental illness. With few exceptions, the coefficients associated with the demographic and comorbid conditions are of the expected sign and magnitude.

Discussion. These results are consistent with significant cost offsets associated with substance abuse treatment for those also being treated for select mental illnesses. However, the interpretation of these offsets as beneficial rests on the assumption that dual diagnosis claimants are receiving appropriate levels of both substance abuse and mental health treatment. Dual diagnosis claimants may be receiving insufficient levels of mental health or substance abuse treatment, thus mitigating the benefits of reduced payments.

Children's Mental Health Services in Medicaid

Background. A number of studies have examined the types and prevalence of mental health problems faced by children and adolescents. Freidman and colleagues (1998) estimated that between 5 and 13 percent of children ages 9 to 17 have a serious emotional disturbance, with results varying inversely with percent of children in poverty. Other estimates suggest that 10 percent of adolescents have other diagnosable mental health problems (Howell, Buck, and Teich, 2000). The most detailed analysis of mental health service use in Medicaid-enrolled children and adolescents is reported in Buck (1997) using 1990 data from Michigan and Tennessee. This analysis found that between five and seven percent of nondisabled children and adolescents used mental health services in 1990 and these mental health users accounted for between 17 percent (Michigan) and 24 percent (Tennessee) of total Medicaid costs for nondisabled children and adolescents.

Our second detailed analysis focuses on annual Medicaid service use and payments for children and young adults (those under age 20) treated with MH/SA conditions. We begin with Medicaid data from Michigan, New Jersey, and Washington in 1993 and Pennsylvania in 1994 and follow these individuals into the subsequent year. We present results for several subsets of the MH/SA population and compare results with those of a comparison sample. The comparison sample is a stratified sample of claimants (controlling for age, race, gender) of approximately equal size to the MH/SA sample selected from the pool of claimants without MH/SA disorders.

Characteristics of Children Using Medicaid Services. Table 8 presents the demographic characteristics of the MH/SA study population for each State. Although the diagnosed annual prevalence rates vary dramatically, differences in population subgroups are generally consistent across States. The diagnosed annual prevalence rate of MH/SA disorders is highest among children ages 10 to 14, where it ranges between 8.9 percent and 15.7 percent of enrollees. Rates are also high in adolescents ages 15 to 19. Despite lower prevalence rates, children under age 10 represent between 39 and 51 percent of mental health claimants because they account for a significant portion of young enrollees.

As expected, the diagnosed annual prevalence of MH/SA claimants was considerably higher among Medicaid enrollees who had qualified because of a disability. In the four States analyzed, prevalence ranged from 19.1 percent to 33.1 percent, which was three to five times higher than children without a disability enrolled in Medicaid. Although disabled children represent only four to six percent of Medicaid enrollees younger than 20, they represent 20 to 27 percent of the MH/SA claimants in three of the four States.

With one exception, recipients were disproportionately White and male. Diagnosed annual prevalence rates ranged from 5 to 8.4 percent for girls and 7.5 to 13 percent for boys. Between 8.1 and 10.5 percent of White enrollees younger than 20 had evidence of an MH/SA condition. Only in Pennsylvania, where diagnosed annual prevalence rates were highest, did rates for most other racial/ethnic subgroups exceed the rates of White children. New Jersey, which included data on 1,702 American Indians, showed the prevalence rate among this group to be extremely high (24.3 percent).

Annual Health Care Utilization of Children With MH/SA Conditions. Table 9 compares annual utilization and payments between children with MH/SA conditions and children in the comparison sample. The table summarizes the differences in

Table 8. Demographic characteristics of MH/SA claimants and enrollees, medicaid children, four study states[a, b]

	MI 1993			NJ 1993			PA 1994			WA 1993		
	% MH/SA Claimants <20 (*N* = 39,609)	% Enrollees (*N* = 455,265)	% of MH/SA Enrollees	% MH/SA Claimants <20 (*N* = 21,184)	% Enrollees (*N* = 340,495)	% of MH/SA Enrollees	% MH/SA Claimants <20 (*N* = 54,884)	% Enrollees (*N* = 512,901)	% of MH/SA Enrollees	% MH/SA Claimants <20 (*N* = 20,557)	% Enrollees (*N* = 248,384)	% of MH/SA Enrollees
Age (Years)												
2–4	10.8%	25.4%	3.7%	12.1%	26.3%	2.9%	8.7%	23.6%	4.0%	13.3%	25.9%	4.3%
5–9	32.7%	30.8%	9.3%	30.0%	30.3%	6.2%	30.5%	31.1%	10.5%	31.8%	31.0%	8.5%
10–4	32.2%	22.7%	12.3%	32.7%	22.7%	8.9%	33.6%	22.9%	15.7%	30.7%	23.5%	10.8%
15–19	24.3%	21.1%	10.0%	25.3%	20.7%	7.6%	27.2%	22.5%	12.9%	24.2%	19.6%	10.2%
Eligibility Group												
AFDC[c]	80.3%	94.2%	7.4%	80.0%	93.5%	5.3%	66.5%	86.6%	8.2%	75.8%	72.1%	8.7%
Disabled	19.7%	5.8%	29.8%	19.9%	6.5%	19.1%	26.6%	8.6%	33.1%	11.0%	4.0%	22.8%
Other	NA	NA	NA	NA	NA	NA	6.9%	4.8%	15.3%	13.3%	24.0%	4.6%
Gender												
Female	39.8%	51.2%	6.8%	42.0%	52.1%	5.0%	39.0%	49.9%	8.4%	45.9%	52.2%	7.3%
Male	60.2%	48.8%	10.7%	58.0%	47.9%	7.5%	61.0%	50.1%	13.0%	54.1%	47.8%	9.4%
Race												
White	71.6%	62.5%	10.0%	34.1%	24.3%	8.7%	70.2%	71.3%	10.5%	69.5%	70.8%	8.1%
Black	23.0%	28.8%	6.9%	36.8%	44.4%	5.2%	19.0%	19.2%	10.6%	4.1%	6.3%	5.4%
Hispanic	2.2%	5.3%	3.5%	19.5%	26.1%	4.7%	9.8%	7.7%	13.7%	4.4%	13.5%	2.7%
Asian	<1.0%	1.2%	<.1%	0.2%	0.7%	1.6%	0.3%	1.2%	2.8%	0.9%	2.8%	2.7%
American Indian	0.6%	0.7%	8.3%	2.0%	0.5%	24.3%	0.1%	0.1%	13.1%	2.9%	4.1%	5.8%
Unknown	2.6%	1.5%	14.4%	7.3%	4.0%	11.3%	0.6%	0.6%	10.4%	18.2%	2.5%	59.4%

[a] Year 1 data (1993 for Michigan, New Jersey, and Washington; 1994 for Pennsylvania).
[b] In the cells where the number of children was fewer than 50, we report data as "NA" (not available).
[c] AFDC = Aid to Families with Dependent Children.

rates of use, days per user (inpatient care), and average Medicaid payments. The second row in table 9 shows that average annual payments per MH/SA claimant were three to six times greater, depending on the State, than payments per claimant in the comparison sample. Average payments ranged from $3,189 per MH/SA claimant in Washington to $5,069 in New Jersey, whereas average payments for comparison sample children did not exceed $1,500 in any State. Further analyses (not reported) revealed that the proportion of payments for the MH/SA population that was associated with MH/SA treatment ranged from 58 to 73 percent of all payments for this population. Although this is significantly higher than the percentage dedicated to MH/SA services for the entire MH/SA population, it is not surprising given that children and adolescents are expected to receive less non-MH/SA care than older enrollees. On the basis of these percentages, non-MH/SA-related payments are greater for MH/SA claimants than total payments for the comparison sample. This finding is consistent with MH/SA claimants having a lower health status than those in the comparison sample.

Greater use of inpatient services was one source of higher payments for the MH/SA sample. The rate of use for inpatient hospital care ranged from 83 to 142 admissions per 1,000 claimants in the MH/SA sample. The rate was at least one-third higher than the rate among the comparison sample. Average length of stay was also substantially higher for MH/SA claimants.

The majority of claimants in both the MH/SA and comparison samples used physician, ambulatory, and prescription drug services. Again, the use rate was higher among MH/SA claimants than among the comparison sample; payment per user was also higher. Particularly noteworthy was the difference in the use of ambulatory facilities services, which primarily include clinics and hospital outpatient departments. Ambulatory facilities utilization rates among children with MH/SA conditions ranged from 840 to 891 users per 1,000 claimants, compared with only 441 to 563 per 1,000 claimants for the comparison group. Payment per user ranged from $874 to $2,033 for MH/SA children, at least double the payment for the comparison sample in New Jersey and as much as nine times greater in Washington.

Continuity of Care. A policy interest exists in whether children with acute and chronic health needs stay enrolled in health insurance programs. Continuous enrollment increases the likelihood that children will stay with the same providers and clinics. For children identified with MH/SA claims and for the comparison sample, we examined the Medicaid enrollment rates in the subsequent year.

For both the MH/SA and comparison samples, the vast majority of children remained enrolled in the subsequent year. The highest disenrollment rates were in New Jersey, where about one-fifth of claimants left Medicaid in the second year. In each State, children with MH/SA claims were less likely than comparison group children to disenroll from Medicaid during the second year (see table 10). The last row of table 10 reveals that a substantial portion (one-third to one-half) of MH/SA claimants who stayed enrolled in fee-for-service Medicaid did not have evidence of MH/SA claims in the second year.

Racial and Income Differences. Medicaid is an important source of payment for health care services for low-income children. This study provides estimates of utilization and payments among disabled children and those receiving Aid to Families with Dependent Children (AFDC) diagnosed with an MH/SA condition. In addition, it analyzes prevalence rates and service use for racial/ethnic subgroups.

The rate of mental health service use among AFDC children, five to eight percent, was similar to the rate previously reported for Michigan and Tennessee using 1990 data (Buck, 1997). Mental health utilization rates among disabled children were substantially higher than among AFDC children, ranging from 19 to 30 percent. More important, disabled children made up between 11 percent and 27 percent of all mental health users in this age group, indicating the importance of considering how changes in Medicaid mental health policies will affect this particularly vulnerable group.

Our findings also reveal that Medicaid children who used MH/SA services were disproportionately older, male, and White. With the exception of Pennsylvania, White children were more likely to receive health care related to an MH/SA diagnosis than Black, Hispanic, or Asian children. Our results are unable to explain whether differences in the epidemiology of MH/SA disorders are the source of this variation. We establish, however, that the service system is less likely to diagnose and treat Medicaid children of most racial/ethnic minority subgroups relative to White children—a finding that suggests the need for further investigation of service barriers; family perceptions of service access and need for care; and provider screening, monitoring, and treatment decisionmaking.

Table 9. Total annual utilization for MH/SA claimants and comparison claimants, children, each state[a, b]

	MI 1993		NJ 1993		PA 1994		WA 1993	
	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample
All claimants	39,621	34,049	21,185	19,036	54,884	65,378	20,559	16,568
Annual payments per claimant	$3,941	$751	$5,069	$1,479	$4,861	$829	$3,189	$966
Inpatient services								
Users/1,000 claimants	93	62	138	77	142	63	83	63
Average length of stay	6.2	3.0	9.4	4.7	16.0	3.4	5.7	2.9
Payment per user	$5,924	$3,414	$8,517	$7,154	$10,146	$3,637	$5,981	$4,373
Physician services								
Users/1,000 claimants	889	791	825	744	793	707	877	790
Payment per user	$293	$175	$171	$115	$204	$140	$402	$277
Ambulatory facilities								
Users/1,000 claimants	891	563	864	515	874	552	840	441
Payment per user	$874	$300	$1,472	$777	$927	$192	$2,033	$238
Prescription drugs								
Users/1,000 claimants	838	748	835	776	822	752	798	719
Payment per user	$225	$105	$283	$171	$307	$143	$191	$111

[a] Includes all services—MH/SA and medical/surgical—utilization.
[b] Year 1 data (1993 for Michigan, New Jersey, and Washington; 1994 for Pennsylvania).

Table 10. Status of MH/SA Children sample (ages 2 to 19) in study year two

	MI		NJ		PA		WA	
	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample	MH/SA Sample	Comparison Sample
Total claimants, 1993 (1994 for Pennsylvania)	39,621	34,049	21,185	19,036	54,884	65,378	20,559	16,568
% Not enrolled in 1994 (1995 for Pennsylvania)	8.9%	16.9%	18.5%	21.7%	5.9%	12.1%	11.1%	16.2%
Of fee-for-service MH/SA claimants remaining in 1994 (1995 for Pennsylvania)								
% No MH/SA utilization in 1994 (1995 for Pennsylvania)	37.5%		50.2%		37.6%		46.9%	

Discussion. We compared annual payments for all Medicaid services for the MH/SA sample with those from the comparison sample and considered whether those diagnosed with an MH/SA condition in the prior year were more likely to be enrolled in the subsequent year. Average annual payments per MH/SA claimant were three to six times greater, depending on the State, than payments per claimant in the comparison sample. Further analysis indicated that, unlike the adult population, the majority of payments for the MH/SA sample were associated with their MH/SA care.

Children treated for MH/SA conditions were also slightly less transient in their Medicaid enrollment than other children with similar demographic characteristics. This finding implies that many children with mental health needs could potentially have continuity with service providers. Finally, we observed that the majority of children with evidence of an MH/SA condition in year one also had evidence of an MH/SA condition in the subsequent year, although a substantial minority (between 34 and 50 percent, depending on the State) appeared to have transient mental health needs.

Chronic Conditions in Select Employer-Sponsored Health Plans

Background. Two significant themes have been converging in the health care sector. First, many financial and service delivery systems have been experimenting with various aspects of managed care. Second, the social and economic importance of chronic illnesses has risen as the population ages and more people are surviving to experience these conditions. The ability of different service delivery systems to address the needs of individuals with chronic conditions is of great importance to policymakers. There are specific concerns about how various aspects of managed care affect treatment for individuals with behavioral health needs.

Our third detailed analysis examines the prevalence and utilization experience of select individuals who are enrolled in employer-sponsored private health plans. These plans are categorized as fee-for-service plans, managed health plans (including preferred provider organization [PPO] and point-of-service [POS] plans), or capitated health plans (HMOs). The trend in the mid-1990s has been for more individuals with chronic illnesses to enroll in managed care plans, either voluntarily or through limited choices, suggesting that managed care will have to concentrate on cost-effective strategies for dealing with these populations (Institute of Medicine, 1997).

Methods. The primary interest of this analysis is whether trends in observed differences across health plans are similar for individuals with physical versus MH/SA conditions. Among adults ages 21 to 64, we focus on two MH/SA conditions—major depression and substance abuse—and one physical

health condition—diabetes. Among children ages 0 to 20, we focus on childhood disorders, stress and adjustment disorders, and asthma.

Our analysis is limited to plans for which encounter, enrollment, and benefit design information was available from the MarketScan® database in 1995. The result was a selection of 48 health plans, which covered a total of 1,776,830 individuals who were drawn from 15 employers operating in all regions of the country and in various industries.[4] The study includes 12 fee-for-service plans, 24 managed plans, and 12 capitated plans.[5]

Findings. Table 11 presents the percentage of enrollees, mean age, and percentage female for each of the adult populations and for claimants with any behavioral health and nonbehavioral health diagnosis, stratified by plan type. Fee-for-service plans had the most adult enrollees (731,241), followed by managed plans (382,240) and capitated plans (161,823). No apparent systematic differences exist in the percentage of enrollees with behavioral health conditions across plans. However, the percentage with diabetes was twice as high in fee-for-service as in the capitated plans. Claimants diagnosed with each of these conditions in the capitated plans are on average younger than those diagnosed in the managed or fee-for-service plans. There were no consistent differences in the percentage of female claimants across plans.

Table 12 presents the demographic information and prevalence rates for the child populations. Again, fee-for-service plans had the most enrollees (266,474), followed by managed plans (160,284) and capitated plans (74,768). The percentage with behavioral health conditions is higher in fee-for-service than in the capitated plans; however, differences between plans are relatively small in magnitude. Contrary to what we observed for diabetes among adults, asthma was observed disproportionately in capitated health plans (4.1 percent versus 2.8 percent in fee-for-service and 3.3 percent in managed plans). The mean age was consistently highest among fee-for-service enrollees, followed by managed plans and capitated plans. Again, there were no consistent differences in the percentage of female claimants across plans.

Table 13 shows the average number of condition-specific physician visits, the percentage of each population with at least one condition-specific inpatient stay, and the average length of each inpatient stay for the adult populations. For each plan type, adults with depression have, on average, more physician visits than adults with diabetes or a substance abuse condition. Surprisingly, fee-for-service is associated with the smallest number of physician visits for each subpopulation. For both depression and diabetes, managed plans have the highest average number of physician visits, whereas for substance abuse, capitated plans have the highest average number of visits.

For each population, fee-for-service claimants have the highest percentage of inpatient stays and the highest average number of inpatient days. Claimants in capitated plans have the lowest rates for both categories. No apparent differences in trends exist across plans between those with behavioral health conditions and those with diabetes. Also worth noting are the similarities in both the percentage with inpatient stays and the average length of stay among claimants with depression and diabetes. The substantially higher rates among substance abusers are likely associated with drug abuse treatment facilities.

Table 14 shows results for young enrollees with childhood disorders, stress and adjustment disorders, and asthma. There is relatively little variation in the results across plan types. With respect to condition-specific physician visits, there is no apparent ordering of visits by plan type. Claimants with mental health conditions have consistently more visits than do asthma claimants. The percentage with condition-specific inpatient stays and the average inpatient stay is larger for the fee-for-service group for claimants with both stress and adjustment disorders and for claimants with asthma. For childhood disorders, managed plans had the highest percentage of inpatient visits and a significantly higher average number of inpatient days. For all three subgroups, the number of inpatient days was greater for the managed plans than for the capitated plans. Again, no systematic differences were found between those with behavioral health conditions and those with asthma.

Discussion. In this study, we compared the diagnosed annual prevalence rate and utilization patterns for individuals with select behavioral and physical health conditions in private health plans. We did not observe systematic differences between the percentage of enrollees with behavioral and physical health conditions by plan type. Little vari-

[4] Excluded from these totals (and from the study) were individuals ages 65 or older and individuals with a diagnosis of renal failure.

[5] Managed plans included 17 PPO plans, six noncapitated POS plans, and one exclusive provider organization (EPO) plan. Capitated plans included 11 HMOs and two capitated POS plans.

Table 11. Comparison of adult study groups by plan type

	Fee-for-Service	Managed	Capitated
Total adult enrollees	731,241	382,240	161,823
Major depression			
% of total enrollees	1.7%	1.9%	1.7%
Mean age (years)	45.1	43.4	40.4
% female	67.0%	67.3%	68.3%
Substance use			
% of total enrollees	0.7%	0.7%	0.9%
Mean age (years)	43.8	42.2	40.0
% female	33.5%	37.4%	39.0%
Diabetes			
% of total enrollees	4.2%	3.0%	2.0%
Mean age (years)	52.5	51.6	47.3
% female	52.9%	43.5%	47.1%
Any behavioral health			
% of total enrollees	7.7%	8.3%	8.3%
Mean age (years)	44.3	43.0	40.0
% female	62.1%	60.0%	62.1%
Nonbehavioral health			
Mean age (years)	46.4	44.4	39.0
% female	57.6%	52.2%	55.6%

ation was found in percentages for the behavioral health conditions across plan types for both children and adults. Although we found that the diagnosed annual prevalence rate for diabetes among adults was twice as high in fee-for-service as in capitated plans, fee-for-service plans had the lowest observed prevalence rates of childhood asthma.

Given the relatively small differences in diagnosed prevalence rates across plan types for behavioral health conditions, it appears that managed care may not be exerting a strong influence on the likelihood of identifying behavioral health cases. This is not to say, however, that actual differences do not exist. Observed differences in diagnosed prevalence rates across plans can result from several factors. One potential determinant is the underlying health status of the membership (i.e., the case mix in terms of diagnoses and severity). We did find that individuals with the selected conditions were, on average, younger in the capitated plans than in the fee-for-service plans. Other factors that may influence observed prevalence rates include the benefit design, provider network, incentive system, and utilization management strategies. When comparing prevalence rates across health plans, some or all of these factors may vary.

In summary, regardless of the types of strategies used by managed and capitated plans to influence utilization of health services, these results do not suggest that the behavioral health conditions represent a disproportionate burden for managed or capitated plans compared with fee-for-service plans. Although it was surprising that claimants in fee-for-service plans were often associated with lower utilization than either the managed or capitated plans, no systematic differences were observed between the behavioral or physical health conditions in observed prevalence or utilization across plan types for either children or adults.

Conclusion

This chapter provides a snapshot of the prevalence and costs of MH/SA services in the public and private sectors in 1994 and 1995 and includes summaries of three detailed analyses that focus on spe-

Table 12. Comparison of child study groups by plan type

	Fee-for-Service	Managed	Capitated
Total child enrollees	266,474	160,284	74,768
Childhood disorders			
% of total enrollees	2.4%	2.3%	2.0%
Mean age (years)	12.0	11.4	10.6
% female	27.5%	25.5%	27.8%
Stress and adjustment			
% of total enrollees	1.6%	1.7%	1.4%
Mean age (years)	13.4	12.6	12.1
% female	49.8%	51.1%	54.3%
Asthma			
% of total enrollees	2.8%	3.3%	4.1%
Mean age (years)	10.5	9.9	8.8
% female	42.2%	42.5%	39.1%
Any behavioral health			
% of total enrollees	5.6%	5.4%	4.8%
Mean age (years)	13.9	12.7	11.7
% female	41.2%	41.0%	43.5%
Nonbehavioral health			
Mean age (years)	10.6	9.5	8.4
% female	50.7%	51.0%	49.6%

Table 13. Distributions of condition-specific ambulatory visits, specialist visits, and hospital stays for adults with select conditions

	Fee-for-Service	Managed	Capitated
Average number of physician visits			
Depression	13.3	14.6	13.3
Substance abuse	6.2	9.2	10.4
Diabetes	7.5	12.1	11.3
% with one or more inpatient hospital stays			
Depression	8.4%	6.0%	4.8%
Substance abuse	27.4%	22.5%	19.0%
Diabetes	8.9%	7.5%	6.5%
Average number of inpatient days per 1,000 claimants			
Depression	970	610	420
Substance abuse	2,870	2,720	1,510
Diabetes	760	620	490

Table 14. Distributions of condition-specific ambulatory visits, specialist visits, and hospital stays for children and adolescents with select conditions

	Fee-for-Service	Managed	Capitated
Average number of physician visits			
Childhood disorders	8.9	9.0	8.0
Stress and adjustment disorders	10.3	10.5	9.5
Asthma	4.0	4.7	5.0
% with one or more inpatient hospital stays			
Childhood disorders	1.5%	2.2%	1.4%
Stress and adjustment disorders	1.8%	1.3%	1.1%
Asthma	5.2%	4.0%	4.4%
Average number of inpatient days per 1,000 claimants			
Childhood disorders	170	500	160
Stress and adjustment disorders	140	120	50
Asthma	180	160	110

cific research questions. Since this period, there have been significant changes in managed care penetration in both public and private sector health plans, additional treatment options have become available for those with select MH/SA conditions, and new State and Federal laws have been enacted relating to mental health and substance abuse services. These and other factors have had a significant impact on the landscape of the behavioral health care system, yet few detailed studies have assessed their implications for individuals enrolled in public and private sector health plans. These estimates will serve as a useful benchmark against which to evaluate changes that have occurred in the latter half of the 1990s.

Our analysis has several limitations that combine to suggest that the actual prevalence and costs associated with MH/SA conditions may be underestimated. Because the results are based on claims data for a limited period, we cannot identify those who may have a given condition but who did not have a claim for it in the analysis period. It is likely that many individuals who suffer from a mental health or substance abuse condition did not seek care for that condition during the reporting period. For Medicaid recipients, who often gain and lose eligibility multiple times during the year, underreporting of medical conditions is likely to be exacerbated. In addition, physicians may knowingly misreport MH/SA conditions either to protect patient confidentiality or to receive reimbursement for uncovered services. Because of the stigma associated with MH/SA conditions, physicians may be less likely to document them. This may be especially true for private sector claimants who are concerned that this information could be leaked back to their employers. If a select MH/SA service is not reimbursable under a specific program, then no evidence of that service will be included in the data, even if the patient received the service. For example, for private sector plans that do not cover drug abuse treatment, no record would be generated for enrolled individuals who sought these services. In addition, these estimates focus solely on payments made by health plans on behalf of enrollees. They do not include out-of-pocket payments made by enrollees, payments by other providers (e.g., State agencies or third-party insurers), and payments associated with noncovered services. For all these reasons, the payment estimates are likely to underestimate the true costs of treatment for individuals with MH/SA conditions.

Even with these limitations, the data reveal that MH/SA conditions are prevalent. Between 7 and 16 percent of all enrollees and between 10 and 19 percent of claimants had evidence of an MH/SA condition during the analysis period. Annual Medicaid payments for these individuals ranged from $387 million (Washington) to $1.3 billion (Pennsylvania), and annual Medicare payments approached $40 billion. Continued reporting of utilization and payments for MH/SA services in a consistent manner will allow for an assessment of the impact of select factors (e.g., mental health parity legislation) on prevalence and utilization over time and across programs and individuals.

Appendix
Diagnoses that Identify Persons With Mental Health and Substance Abuse Problems

Description	Codes
Selection Diagnoses:	
Mental Health and Substance Abuse	265.2, 291-314, 316, 357.5, 357.6, 425.5, 535.3, 571.0-571.3, 648.3, 648.4, 655.5, 760.7, 779.5, 790.3, 962.0, 965.0, 967, 968, 969, 977.0, 977.3, 980
These codes can be divided into mental health and substance abuse, and further subdivided into the following: • *Serious mental illness* • *Dementias and cognitive disorders* • *Other mental illness* • *Any alcohol diagnosis* • *Any drug diagnosis* • *Other alcohol and drug-related disorders and conditions* • *Tobacco use disorder*	
Mental Health (excluding Alzheimer's)	293-302, 306-314, 316
Substance Abuse (and related medical conditions)	265.2, 291, 292, 303-305, 357.5, 357.6, 425.5, 535.3, 571.0-571.3, 648.3, 648.4, 655.4, 655.5, 760.7, 779.5, 790.3, 962.0, 965.0, 967, 968, 969, 977.0, 977.3, 980
Diagnostic Subgroups for Mental Health Conditions	
Schizophrenia	295
Major depression	296.2, 296.3
Other affective psychoses	296.0, 296.1, 296.4-296.99
Other psychoses	293, 294, 297, 298, 299
Stress and adjustment disorders	308, 309
Personality disorders	301, exc. 301.13
Childhood disorders	312-314
Other mood disorders (including anxiety disorders)	300, 301.13, 311
Other mental disorders	302, 306, 307, 310, 316
Diagnostic Subgroups for Substance Abuse Conditions	
Alcoholic psychoses	291
Alcohol dependence/nondependent abuse	303, 305.0
Drug psychoses and mood disorders	292
Drug dependence/nondependent abuse	304, 305.2-305.9
Other alcohol- and drug-related disorder/condition	265.2, 357.5, 357.6, 425.5, 535.3, 571.0-571.3, 648.3, 648.4, 655.5, 760.7, 779.5, 790.3, 962.0, 965.0, 967-969, 977.0, 977.3, 980
Tobacco use disorder	305.1

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